

those of Theriodonts; and this alliance was confirmed by the study of other fragments. Some of the characters presented by these remains seem to suggest affinities with the carnivorous mammalia, such as have been already indicated by the humeri of Theriodonts and Carnivores.

The canine tooth of the new South-African reptile, which the author proposes to name *Titanosuchus ferox*, was six times as long as that of the allied form *Lycosaurus*; and we have in *Titanosuchus* evidence of a carnivorous reptile of more carnassial type than *Machairodus* and other Felines. The author suggests that *Titanosuchus* found its prey in the contemporary *Pareiosauri*, Oudenodonts, and Tapinocephalans of the same locality.

## MISCELLANEOUS.

### *Method of Investigating the Embryos of Fishes.*

By M. F. HENNEGUY.

THE OVA of the Salmonidæ are generally employed by embryologists in the study of the development of the osseous fishes. It is difficult to examine them in the fresh state, either whole, by transmitted light, on account of the thickness of their envelope, or after opening them, in consequence of the small consistency of the germ, especially at the commencement of segmentation. Chromic acid, the reagent most frequently employed to harden these ova, readily alters the young cells, and deforms the embryos by compressing them between the unextensible envelope of the ovum and the solidified vitelline mass. For the last two years I have employed, in the Laboratory of Comparative Embryogeny of the Collège de France, a process which enables us to extract the germs and embryos from the ova of trout and salmon with the greatest facility, and without causing them to undergo the least alteration.

I place the ovum for a few minutes in a 1-per-cent. solution of osmic acid until it has acquired a light brown colour—then in a small vessel containing Müller's liquid; and I open it with a fine pair of scissors in the midst of this liquid. The central vitelline mass, which is coagulated immediately on contact with water, dissolves, on the contrary, in the Müller's liquid, while the solidified germ and cutical layer may be extracted from the ovum and examined upon a glass plate.

By treating the germ with a solution of methyle green and then with glycerine I have been able to observe in the cells of segmentation the very delicate phenomena lately indicated by Auerbach, Bütschli, Strasburger, Hertwig, &c., and which accompany the division of the nucleus—namely the radiate arrangement of the protoplasm at the two poles of the cell, the nuclear plate, the bundles of filaments which start from it, and the other succeeding phases.

This proves that the treatment undergone by the ovum does not at all alter the elements of the germ.

In order to make cross sections of the germs and embryos thus extracted from the ovum, I leave them for some days in Müller's liquid, and colour them with picrocarminate of ammonia. After depriving them of water by treatment with alcohol of spec. grav. 0.828 and then with absolute alcohol, I put them for 24 hours into collodion. The embryo is then arranged upon a small slab of elder-pith soaked with alcohol, and covered with a layer of collodion. When the collodion has arrived at a suitable consistency, very thin sections may be made, including the embryo and the plate of pith; and these are to be preserved in glycerine.

This process is applicable to all sorts of embryos which are not very thick, so that they may be coloured *en masse*. It has the immense advantage of enabling one to see at what level in the embryo each section is made, to preserve each section in the midst of a transparent mass, which sustains all the parts and prevents their being damaged, as too often happens when an inclusory mass is employed from which the section must be freed before mounting.

In his 'Précis de Technique microscopique,' M. Mathias Duval has already recommended collodion in embryological researches, but without indicating his mode of employing it. We hope to be serviceable to embryologists by making known to them a process which they may find useful.—*Bull. Soc. Philom. Paris*, November 22, 1878.

*On a Gigantic Isopod from the Great Depths of the Sea.*

By M. A. MILNE-EDWARDS.

The Government of the United States has repeatedly caused dredgings to be made in the American seas; and recently it commissioned Mr. Alexander Agassiz to explore the bed of the Gulf-stream in the Straits of Florida, between the southern point of that State and the island of Cuba. In December 1877 that naturalist embarked on board the steamer 'Blake,' and made a series of dredgings, some of which were carried nearly to 2000 fathoms, and brought up a considerable quantity of animals. Mr. Agassiz, with the consent of the administration of the Coast Survey of the United States, has sent me all the Crustacea collected during this cruise, and begged me to investigate them. The collection is very extensive and rich; it will furnish me with the materials for a memoir, of which I shall have the honour hereafter to communicate to the Academy the general results. At present I shall confine myself to calling attention to one of the most extraordinary animals for which I am indebted to Mr. Agassiz, namely a gigantic Isopod, dredged at 955 fathoms, to the north-east of the bank of Yucatan, north of the Tortugas\*.

This Isopod, to which I have given the name of *Bathynomus giganteus*, is remarkable not only for its comparatively enormous

\* See, on this subject, A. Agassiz, Letter No. 1 to C. P. Patterson, Sup. Coast Survey, on the dredging-operations of the U.S. Survey steamer 'Blake' during parts of January and February 1878 (*Bull. Mus. Comp. Zool. Cambridge*, vol. v. p. 4).